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Inhabited. It's likely that the *Danes* first, and then the *English* destroyed the People ; and the old Woods seem to those that pretend to judge, to be about three or four hundred years standing, which was near the time that *Courcey* and the *English* subdued the North of *Ireland*, and 'tis likely made havock of the People that remained after the *Danes* were beat out of *Ireland*.

IV. De Linearum Curvarum Longitudine Authore Jo. Craig.

L E M M A.

Duorum Quadratorum summam in alia duo Quadrata dividere.

SINT dx^2 , ds^2 duo Quadrata data, quorum summa $dx^2 + ds^2$ dividenda est in alia duo Quadrata dx^2 , dy^2 ; sintque m , & n duo quilibet numeri ad arbitrium sumendi. Jam ex conditione Problematis est $dx^2 + dy^2 = dx^2 + ds^2$, unde (ut ex Diophanto constat)

$$\text{erit } dx = \frac{mm - nn \times dz + 2mn ds}{mm + nn},$$

$$dy = \frac{nn - mm \times ds + 2mn dz}{mm + nn} \dots \text{Q. E. J.}$$

P R O B L E M A.

Curvas innumeras invenire, quæ sint ejusdem Longitudinis cum Curva quavis proposita, siue Algebraica siue Transcendente.

Designent z, s Coordinatas Curvæ propositæ ; & x, y Coordinatas Curvæ quæsitæ, quæ ejusdem sit longitudinis cum proposita ; Unde ex Curvarum Elementis $dx^2 + dy^2 = dz^2 + ds^2$, Ideoque per Lemma præcedens

$$dx = \frac{mm - nn \times dz + 2mn ds}{mm + nn},$$

$$dy = \frac{nn - mm \times ds + 2mn dz}{mm + nn} ;$$

Quarum integrales sunt

$$x = \frac{\overline{m^2} - \overline{n^2} \times z + 2mn s}{mm + nn},$$

$$y = \frac{\overline{n^2} - \overline{m^2} \times s + 2mm z}{mm + nn}.$$

Et sic innotescunt Coordinatæ x, y unius ex Curvis quæsitis ; similiter ex hac una invenietur secunda, ex secunda tertia, & sic porro innumerae invenientur
Q. E. J.

Exempla jam non addo, nam postea (Deo volente) opportunior dabitur locus, in quo Methodus hæc ad plura hujusmodi Problemata extendetur, & Solutio Problematis

hujus per Exempla illustrabitur. Et quidem hanc Solutionem semel iterumque tam apertè indicavi, ut facillimè à quovis in his versato deduci possit ex iis, quæ subjunguntur Solutioni Casûs specialis hujus Problematis, in quo scilicet. Curva proposita est Algebraica, quamque exhibui in Actis Phil. R. S. Jan. 1704, ut Clarissimo Problematis propositori D. Jo. Bernoulli constaret illius Solutionem è Methodis Calculi differentialis inversis maximè tritis posse obtineri, utpote qui in privatis suis ad D. Cheynæum Literis significabat eandem non posse exhiberi per Theoremata nostra in Actis Phil. R. S. Mart. 1703. publicata. Et quoniam ex Actis Erud. Aug. 1705. percipio solutionem illam (quæ scopo prædicto satis superque satisfaciebat) Doctissimo Viro non arridere, ideo modo præmissam Solutionem nulli objectioni obnoxiam publici juris facio. Necessè itaque est ut Clariss. Bernoulli agnoscat vix ullum dari Problema, cujus Solutio ex Calculo Integrali facilius deducitur, quam sui de Transformatione Curvarum.

Quæ verò in ipsius Bernoulli Solutione displicent paucis enarrabo. Et Primo, Quod ad Curvas tantum Algebraicas eandem extenderit. Secundo, Quod Mechanica tantum sit, à Motu (ut vocat) Reptorio tota dependens. Immortali quidem honore dignus est Hugenius ob inventum Evolutionis Motum, quia & ipse & post ipsum alii plurima egregia Theoremata Geometricè exinde deduxerunt. Sed nec Motus Leibnitii Tractionis, nec Bernoulli Motus reptorius cum Hugenii Motu evolutionis comparabuntur, donec cum Hugenio celeberrimi viri Curvas per Motus suos genitas ad leges Geometricas revocaverint quod cum neuter eorum præstiterit, ideo Problematum Solutiones dependentes à Curvis per Motus suos genitis inter Mechanicas solum annumerari possunt.